sugar may be, but is not restricted to, any of the following sugars: glucose, N-acetylglucosamine, galactose, N-acetylgalactose, mannose, fucose.

^bFolic acid may be used in place of the sugar residues

6a R = H

6b R =
$$-P - N$$
 $-N + NH_3$

FIG. 2c

FIG. 2d

3'dT5-CPG

Alternating couplings with 2'-OCH₃ methylphosphonate and 2'-OCH₃ phosphodiester synthons

 $^{5'}(2'\text{-}OMe\text{-}ApGpUpCpApGpUpCpApGpUpCpApGpU})dT^{\bullet}\ ps\ ^{3'\cdot 3'}dTpsdT\ ^{5'}\text{-}CPG$

C6-Disulfide cyanoethylphosphoamidite synthon

 $\mathsf{DMTO}\text{--}(\mathsf{CH_2})_{\mathsf{6}}\text{--}\mathsf{SS}\text{--}(\mathsf{CH_2})_{\mathsf{6}}\text{-}\mathit{ps}\text{--}\overset{\mathsf{5}}{}(2'\text{-}\mathsf{OMe}\text{-}\mathsf{ApGpUpCpApGpUpCpApGpUpCpApGpU})}\mathsf{dT}^{\bullet}\text{-}\mathit{ps}\text{-}^{3'\cdot3'}\mathsf{dT}\mathit{ps}\mathsf{dT}\text{-}^{5'}\text{-}\mathsf{CPG}$

DMTO-(CH₂)₆ -SS-(CH₂)₆·ps ⁻⁵(2·OMe-ApGpUpCpApGpUpCpApGpUpCpApGpU)dT^{*} ps^{3·3}dTpsdT ^{5·}CPG

FIG. 2e

1. Genta One-pot Deprotection 2. Trityl-On Purification

 $\mathsf{HO} ext{-}(\mathsf{CH}_2)_6 - \mathsf{SS} ext{-}(\mathsf{CH}_2)_6 ps - 5(2 ext{-}OMe-ApGpUpCpApGpUpCpApGpUpCpApGpUpCpApGpU})$

50 mM DTT 10 mM sodium phosphate (pH 8)

 $\mathsf{HS-}(\mathsf{CH}_2)_6.ps-\frac{5}{2}(2^*\mathsf{CMe-ApGpUpCpApGpUpCpApGpUpCpApGpU}\mathsf{dT}^*ps^{3^*\cdot3^*}\mathsf{dT}_{ps}\mathsf{dT}^{5^*}$

[YEE(ah-GaiNAc)3]—N

[YEE(ah-GalNAc)3]

 $-S-(CH_2)_6 \cdot ps \stackrel{5}{-} (2.0 \text{Me-ApGpUpCpApGpUpCpApGpUpCpApGpU}) dT \cdot ps ^{3.3} dTps dT ^{51}$

1. (y-32p)-ATP, PNK 2. 1-Me-Imidazole 3. EDA/EDAC

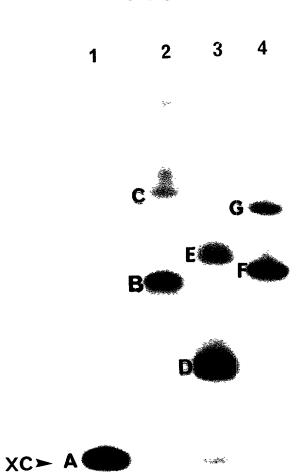
[YEE(ah-GalNAc)3]

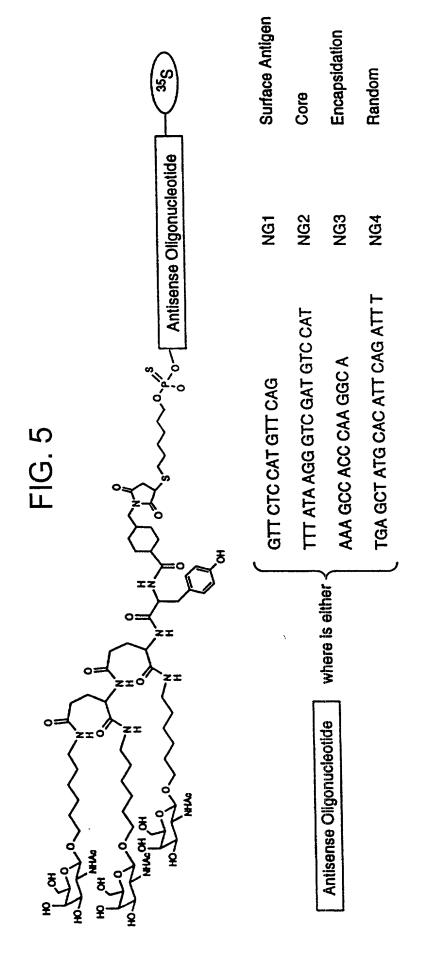
where p: phosphodiester linkage p: methylphosphonate linkage ps: phosphorothioate linkage

 ∞

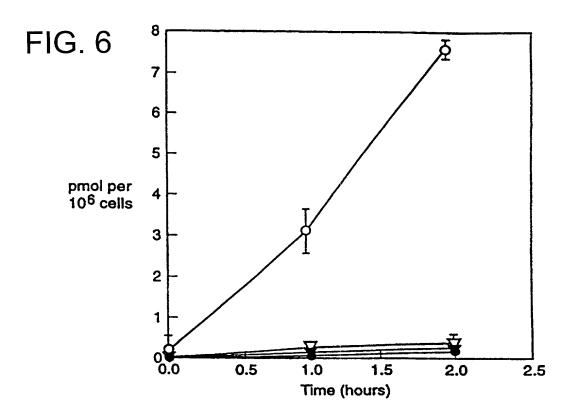
10

FIG. 4





 35_{S} where is $-\{[^{35}S]\text{-ps}^{4}A\}_{\text{n n}=1..3}$



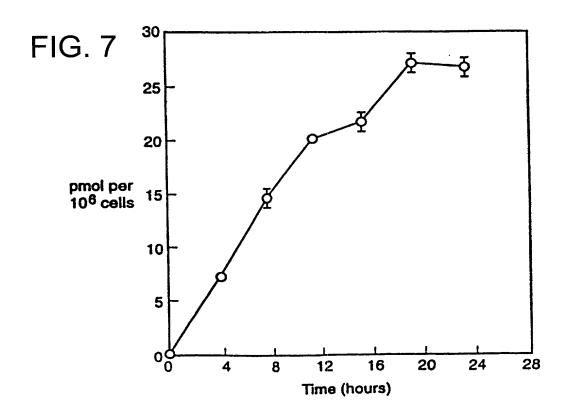
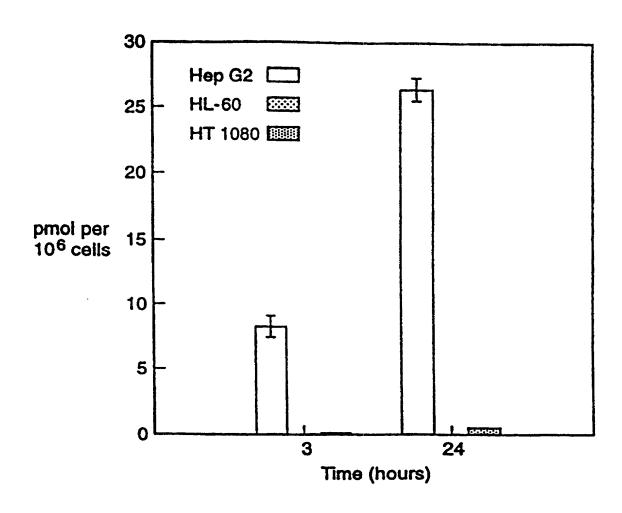


FIG. 8



NUCLEASE RESISTANT NEOGLYCOCONJUGATE UPTAKE BY HEP G2 CELLS

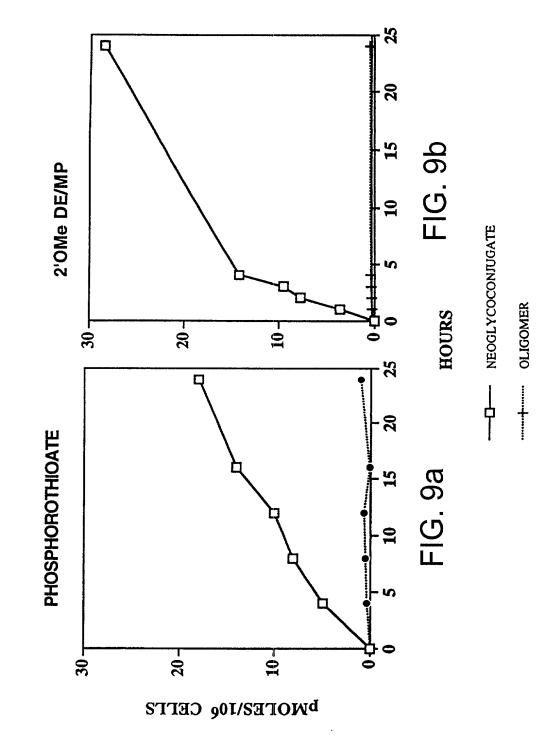
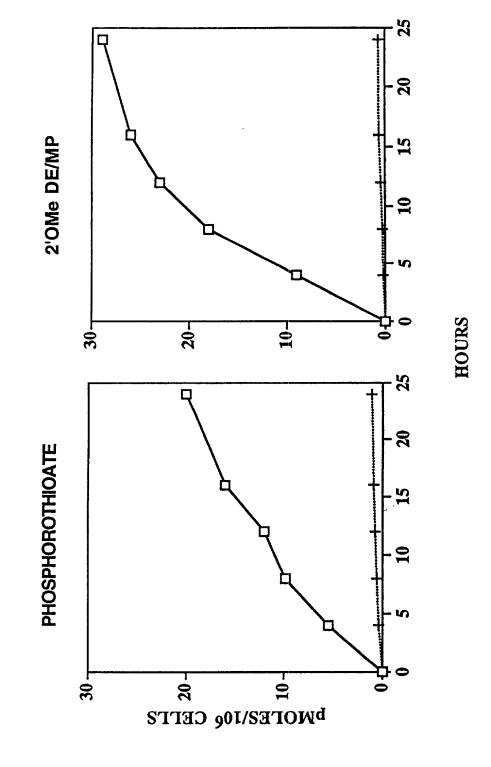
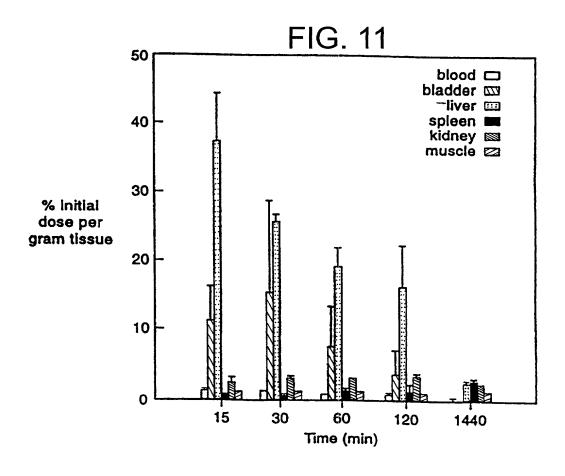


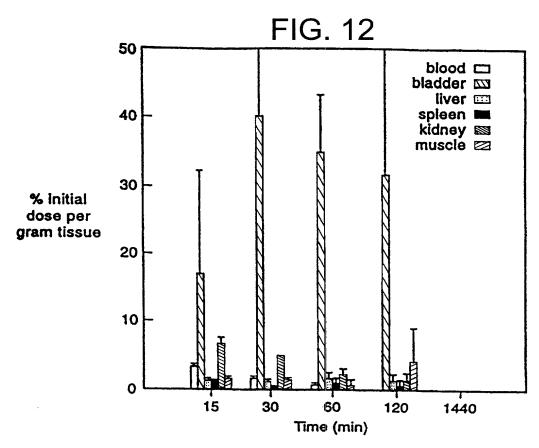
FIG. 10
NUCLEASE RESISTANT NEOGLYCONJUGATE UPTAKE
BY HEP G2 2.2.15 CELLS



neoglycoconjugate

.....-t-..... oligomer





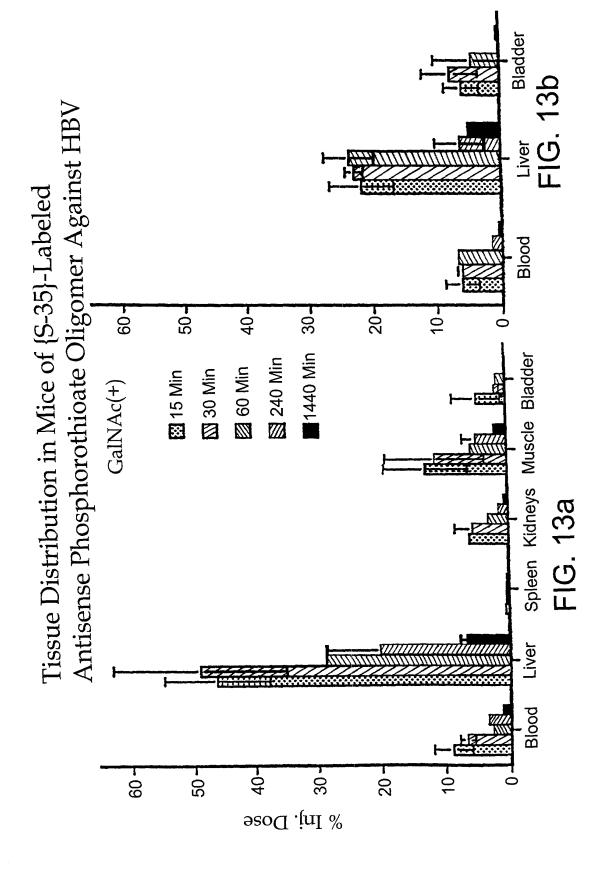


FIG. 14

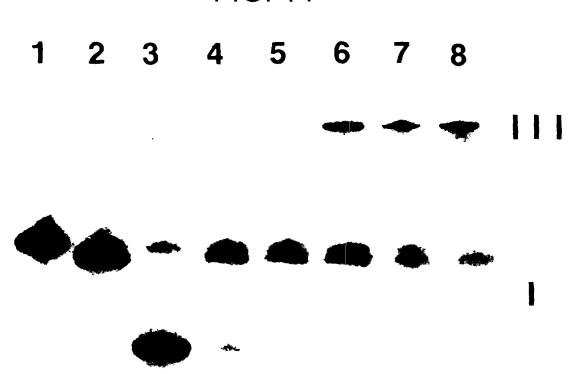
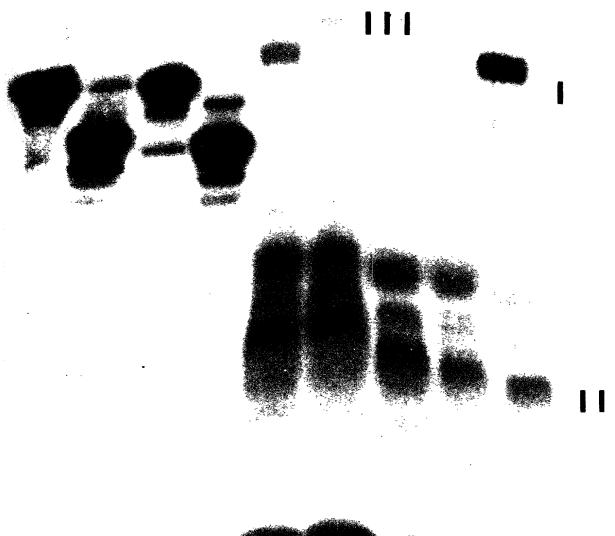


FIG. 15





10: YEE(ahGalNAc),-SMCC-AET-pU"pI,

%

11: YEE(ah),-SMCC-AET-pU"pI,

12: [Y]-SMCC-AET-pU"pI,

13: pU"pI,

14: YEE(ahGaINAc)2-SMCC-AET-pU"pI,

15: YEE(ahGalNAc),-SMCC-AET-pUm

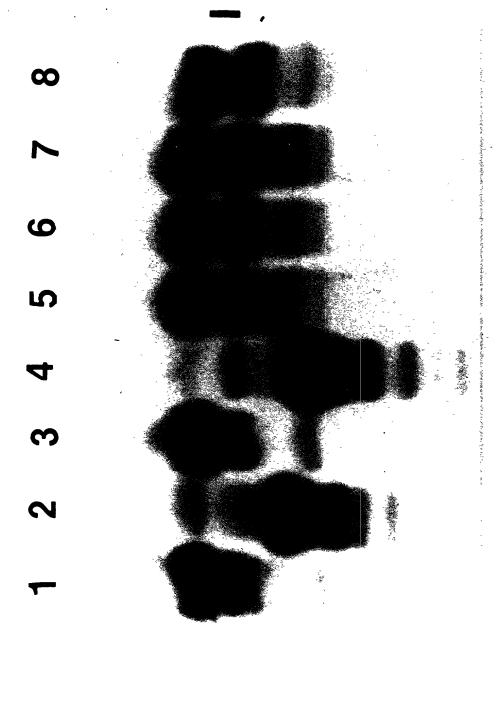


FIG. 17

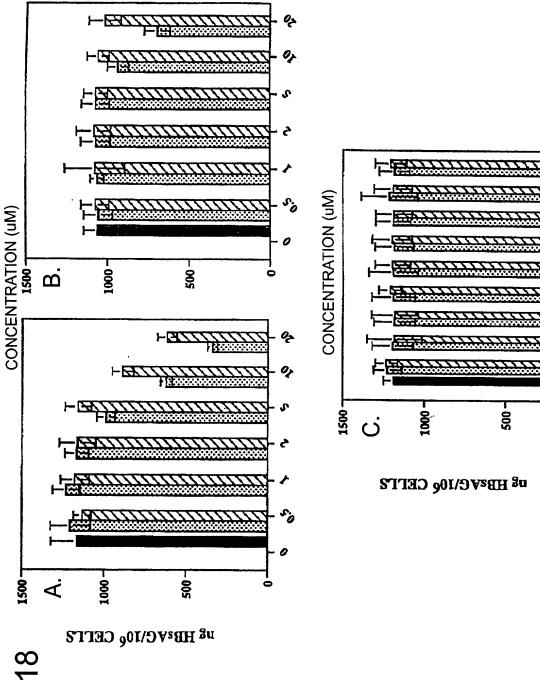
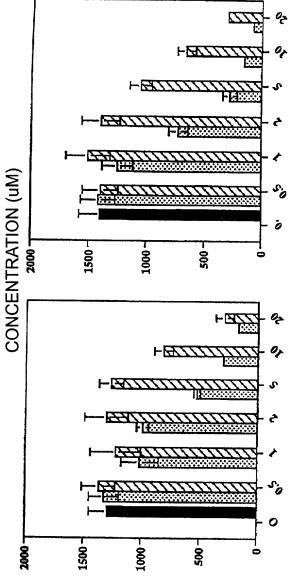
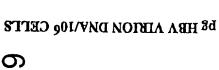
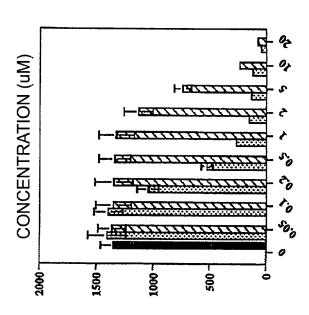


FIG. 18







 $^{
m bg}$ hby virion day.106 cells

